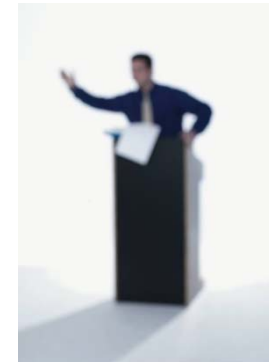


TRAINING IN SMART GRID/ELECTRIC VEHICLES/RENEWABLE ENERGY



Dr. Gary L. Blank

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Conducted at the GALVIN CENTER,
ILLINOIS INSTITUTE OF TECHNOLOGY, SUMMER 2012

COURSE INCLUDES 5 SESSIONS, EACH LASTS $\frac{1}{2}$ DAY

Session 1. Introduction. Basic Electricity and DC Principles

Session 2. AC Principles and Energy Distribution

Session 3. Electric Vehicles

Session 4. Renewable Energy

Session 5. Smart Grid



Times: 8:30 A.M. - 12:00 Noon, 1:00 P.M. - 4:30 P.M.

INSTRUCTOR'S BACKGROUND

EDUCATION:



- PhD University of Wisconsin, Madison
- MS University of Idaho
- BS Illinois Institute of Technology

ALL DEGREES IN ELECTRICAL ENGINEERING

INSTRUCTOR'S BACKGROUND

1. ACADEMIC (PROFESSOR) EXPERIENCE ELECTRICAL & COMPUTER ENGINEERING PROFESSOR

Taught at:

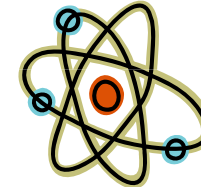
- Illinois Institute of Technology
- Northern Illinois University
- UCLA
- University of Florida
- Marquette University



2. TEACHER OF REVIEW PREPARATORY COURSES FOR THE PROFESSIONAL ENGINEERING EXAM

INSTRUCTOR'S BACKGROUND

EXPERIENCE IN INDUSTRY



1. ELECTRICAL/ELECTRONICS ENGINEER IN INDUSTRY specializing in Electronics, Controls, Power, Circuit Design.
2. CONSULTANT (Industry, consulted for over 40 corporations and companies as clients).
3. EMPLOYEE (Worked as an employee for Litton Guidance & Control Systems Div., Unisys, Teledyne, Honeywell)
4. CONDUCTS in-house courses in engineering

INSTRUCTOR'S BACKGROUND

PROFESSIONAL ORGANIZATION

Institute of Electrical and Electronics Engineers (IEEE)
400,000 Members Internationally

IEEE-USA Vice-President

Career and Member Services

1. Licensure and Registration
2. K-12 STEM Literacy
3. Employment and Career Services
4. Entrepreneurs Activities
5. Consultants Networks



SESSION 1 DETAILS

BASIC ELECTRICITY AND DC PRINCIPLES

- Atoms, Electrons
- Charge
- Current
- Conductors
- Insulators
- Semiconductors
- Voltage
- Resistance
- Batteries



SESSION 1 DETAILS (CONTINUED)

- DC Power Supplies
- Measuring Current, Voltage, and Resistance
- Ohm's Law
- Power
- Series and Parallel
- Characteristics and Relationships
- Electric Fields
- Magnetic Fields
- Lab, Hands-on, and Demos/Batteries/Bulbs/Measure V, I, R, & Meters



SESSION 2 DETAILS

BASIC DISTRIBUTION AND AC PRINCIPLES

- Distribution
- Sine Waves
- Frequency, Phase, Effective RMS
- Inductance
- Capacitance
- Generators and Motors
- Transformers
- Transmission Lines
- Power and Energy
- Efficiency
- Lab, Hands-on, and Demos, measure V, I, Power



SESSION 3 DETAILS

ELECTRIC CAR

- Energy
- Energy Bills
- Economics
- Horsepower
- Sources of Energy
- Vehicles and Fuels
- Hybrid Systems
- Charging Stations
- Lab and Demos



SESSION 4 DETAILS

RENEWABLE ENERGY

Solar:

- Photo Voltaic,
- BIPV
- Panels/Array
- Inverters
- Lab, Hands-on, and Demos



SESSION 4 DETAILS (continued)

RENEWABLE ENERGY

Wind

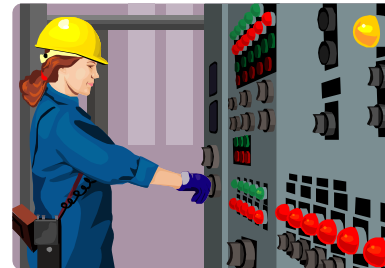
- Wind energy
- Wind turbines
- Gearboxes
- Lab, Field Trip
and Demos



SESSION 5 DETAILS

SMART GRID

- Digital Technology
- Net Metering
- Benefits and Advantages
- Energy Audit Charts
- Integrating Renewable Electricity
- Lab and Demos



CONCLUSION



1. PARTICIPANTS' REACTION AND FEEDBACK
2. ADJUSTING TO NEEDS OF AUDIENCE
3. THE NEXT STEP
4. CONTINUED COMMUNICATION
5. MENTORING
6. ACCREDITATION
7. TAKE-HOME PACKAGE

